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REMARKS

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the amendments and remarks herewith, which place the application in condition for allowance.

I. STATUS OF CLAIMS AND FORMAL MATTERS

Claims 74-93 and 95-97 are now pending upon entry of this amendment. Claim 74 would now require that the alignment layers contain a liquid crystal and that the neural outgrowth can be controlled and changed. Claim 94 has been cancelled. No new matter is believed to have been added by this amendment.

It is submitted that the claims, herewith and as originally presented, are patentably distinct over the prior art cited in the Office Action, and that these claims were in full compliance with the requirements of 35 U.S.C. § 112. The amendments of the claims, as presented herein, are not made for purposes of patentability within the meaning of 35 U.S.C. §§§§ 101, 102, 103 or 112. Rather, these amendments and additions are made simply for clarification and to round out the scope of protection to which Applicants are entitled.

II. THE REJECTIONS UNDER 35 U.S.C. §103 ARE OVERCOME

Claims 74-79, 81-89, 93, 94, 96 and 97 were rejected as allegedly being obvious over Georger et al. (U.S. Patent 5,510,628) in view of Kawata (U.S. Patent 6,061,113).

Claims 90 and 91 were rejected as allegedly being obvious over Georger et al. in view of Kawata and further in view of Grainger et al. (U.S. Patent 5,686,549).

MPEP 2143.03 states in part that "To establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art." *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)". While the applicants believe that the claims unamended are also unobvious over the references cited as discussed in the applicants' response dated 2 November 2004, the present amendments to the claims move the claimed subject matter even further away from the teachings of the Georger, Kawata and Grainger references.

First, none of the references alone or in combination teaches that neurite outgrowth can be controlled AND changed during the growth process of the neuron. The Examiner's interpretation of the teachings of Georger would not suggest any ability to change the direction

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of neurite outgrowth, as the Examiner states that the cells are placed into fixed microtrenches and wells (see col. 15, lines 55-70).

Second, the applicants still maintain that this reference in Georger is not even supportive of controlling the growth process or aligning the neurite growth. Even if one of ordinary skill in the art accepted the Examiner's opinion that placing a neuron in a microtrench comprising liquid crystals would have been obvious, Georger does not teach a mono- or multi-*layer* of liquid crystal material on said alignment layer, let alone a combined alignment layer including liquid crystal. If one of ordinary skill in the art were to adopt the Examiner's position that the liquid crystal of Georger is equivalent to a microelectrode, the skilled artisan would have to embed the liquid crystal into the substrate on which there may be microtrenches or wells (see r.g. col. 15, lines 58-62 which reads: "This...allows the placement of cells within lithographically defined physical barriers such as microtrenches or wells, and onto substrate-embedded microelectrodes or photodiodes."

In other words, one would replace the microelectrodes by a liquid crystal and embed the same in a substrate. Georger does not teach to align such microelectrodes/liquid crystals, let alone to put them in a specifically provided *layer* on the substrate.

Because Georger fails to teach a layer of liquid crystal (be it a mono- or multilayer of liquid crystal or a combined alignment layer including a liquid crystal), the problem set out in Georger is different to the problems set out in Kawata which teaches an optically anisotropic layer containing a liquid crystal compound; Kawata explicitly states that they are attempting to "...provide an optical compensatory sheet having a high optical purity, appropriate for mass production,...to provide an optical compensatory sheet that can easily adjust the optical axis,...to provide a process for the preparation of the improved optical compensatory shade and a liquid crystal display using the improved optical compensatory sheet." (see col. 2, line 65 - col. 3, line 6 of Kawata)

Therefore, one of ordinary skill in the art would not have had to the motivation or direction to surgically remove an isolated teaching from Kawata for insertion into Georger. It is well known that there must be a teaching or suggestion within the prior art, within the nature of the problem to be solved, or within the general knowledge of a person of ordinary skill in the field of the invention, to look to particular sources, to select particular elements, and to combine

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them as combined by the inventor. See Ruiz v. A.B. Chance Co., 234 F.3d 654, 665, 57 USPO2d 1161, 1167 (Fed. Cir. 2000); ATD Corp., 159 F.3d at 546, 48 USPO2d at 1329. There is simply no basis for one of ordinary skill in the art to make the appropriate selection especially when the vantage point of the skilled artisan is the state of the art at the time the invention was made and without the benefit of the applicants' claims before them.

Lastly, there is no teaching in Georger, that it is specifically the polymeric materials recited in column 5, lines 35 - 45 which are to be patterned. The only material taught to become patterned are those recited in column 6, lines 5 - 10. However, such pattern as described in column 6, lines 5 - 10 is not an alignment layer for a mono- or multi-layer liquid crystal material, nor does it act as such. In fact, Georger does not teach or suggest that a liquid crystal material is aligned. The Examiner seems to conclude from column 15, lines 60 - 67, that the "micro trenches or wells" mentioned therein provide for an alignment of the liquid crystal transducer. Applicants would like to respectfully point out that neither the recited passage nor any other passage in Georger suggests such alignment of a liquid crystal transducer. It is only explicitly said that micro trenches may be coated with a cell adhesion promoter while the sides and steps are coated with an adhesion inhibitor. It is not clear why this should contain a teaching to the extent that a liquid crystal transducer be aligned through the micro trenches.

Thus, Georger does not teach that a mono- or multi-layer liquid crystal material is aligned on an alignment layer nor does it teach or suggest an alignment layer at all.

The applicants are unclear as to where the Examiner is drawing his opinion for equivalence as there is no explicit teaching from the Georger reference (or supporting references) itself. If the Examiner is taking Official Notice, then the applicants would like to see the reference which provides the basis for the Examiner's opinion so that a proper Appeal Brief can be filed. If the Examiner was relying on inherency to fill in the gaps for the lack of direction and teaching provided by the Georger reference, then the applicants would like to point out that MPEP 2112, sec. IV (Requirements of Rejection Based on Inherency; Burden of Proof) states in part that "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).....To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the

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reference, and that it would be so recognized by persons of ordinary skill. **Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.**" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)(citations omitted)" - (emphasis added). To date there has been no "extrinsic evidence" which tends to support the Examiner's opinion or interpretation of the teaching of Georger.

For these reasons, the applicant's claims are not rendered obvious by the combination of Georger, Kawata and Grainger references.

REQUEST FOR INTERVIEW

In the interest of adhering to the tenets of compact prosecution and obtaining good customer service (see page 7 of the FY-2004 Performance and Accountability Report); the applicants request that the teachings of MPEP 707.07(j), sections II and III be applied, especially with regard to the offer of suggestion for correction by the Examiner if the rejections are upheld.

In accordance with MPEP 713.01, section III, should any issue remain as an impediment to allowance, an interview with the Examiner and SPE are respectfully requested; and, the Examiner is additionally requested to contact the undersigned to arrange a mutually convenient time and manner for such an interview ("An interview should normally be arranged for in advance, as by letter, facsimile, electronic mail, telegram or telephone call, in order to insure that the primary examiner and/or the examiner in charge of the application will be present in the office." *Id.*).

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CONCLUSION

In view of the remarks and amendments herewith, the application is believed to be in condition for allowance. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are earnestly solicited. The undersigned looks forward to hearing favorably from the Examiner at an early date, and, the Examiner is invited to telephonically contact the undersigned to advance prosecution.

Respectfully submitted,
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